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EDITORS' TABLE.

EDITORS: A. S. PACKARD AND E. D. COPE.

— Nearly every one knows that the natural process of learning nature is the reverse in its order of the system on which nature has been built up. The primitive stages of creation are difficult of observation, and in many cases belong to past time. It is the completed results which first obtrude themselves on our observation, and which attract our attention by their beauty and other remarkable characteristics. It is the desire to possess in its storehouses these varied objects, the wish to classify them in some manageable form, which generally actuates the mind in its first excursions into the field of natural history. Even when the young naturalist has the ulterior object of seeking the origin or *modus vivendi* of visible nature, he feels the necessity of becoming acquainted with the species themselves before he can satisfactorily determine their deeper or more concealed qualities. Hence the natural order of acquisition of a knowledge of nature begins with species, and some rational classification of them, before it enters on the ultimate elements, organic or chemical, which compose them.

These remarks are *apropos* to the method of teaching the natural sciences. We venture the assertion that the number of students of nature which have approached it from the side of histology, or even of organology, is small. Interest in the subject is progressive, beginning with the superficial, which is the most simple, and ending with the more profound, which while simplest from the point of view of creation, is more complex in its mental implications. Few minds in their early stages can remember or take much interest in the details of the ultimate analysis or dynamics of nature, since they are difficult both of observation and of mental apprehension. The powers of observation are developed before those of ratiocination, and they lead the growth of the mind of the average person.

The first lessons in natural history should consist of simple and obvious exercises in classification. The natural orders of plants and of insects are especially adapted (with some exceptions) to this stage. They are concise, easily observed and clearly defined. Material is abundant. Many systems of genera are equally good, as those of fresh-water shells and of ferns. The eye-tests for minerals are the natural introduction to mineralogy. We condemn

without hesitation any system of education which commences, as nature commenced, with microscopic objects, and with processes which are as yet unclassified. The thirst for the unknown will develop, and it should be led along by a process of satisfaction before it is brought to that frontier line where all the resources of knowledge and method are necessary to progress.

— The earthquake which visited the eastern part of North America on August 31st is one of the most remarkable in our history, both in its extent and in its serious results to the southeastern portion of the country. Its occurrence naturally excites inquiry as to the possibility of our being more frequently visited than heretofore by this scourge. The numerous earth-trembles common to all countries are of little moment, but against such destruction as has visited Charleston we must, if possible, provide.

It is well known that there are lines of abrupt change of the geological structure of the earth's crust, which are known as faults. These are more or less elongated fractures, on one side of which the strata occupy a much higher position than they do on the other. The depressed side may not receive deposits of much thickness subsequent to the fracture. If in this case the elevated side is not removed by erosion, a range of monoclinical mountains is the result. If on the other hand deposits are laid down on the depressed area, and the elevated tract is mowed down by "frost and fire," the mountain range disappears and none but the geologist can detect the fault or fissure.

The shrinkage of the earth is supposed to have been the cause of the elevation of many mountain ranges, which are wrinkles of the surface. In the formation of these wrinkles faults often occur. In the formation of the greatest changes of surface they are nearly always produced. Such abrupt changes of structure occur at or near the sea-borders of most continents. The depressed region is occupied by the sea, and by the deposited material which flows into it from the shore.

Such a line of fault extends throughout the Eastern United States. It commences at the sea-coast at Staten island and extends south-west near to Trenton, Philadelphia, Wilmington, Del., Baltimore, Washington, Richmond, Raleigh, Columbia S. Ca., etc. This is a very important line in the economy of the country. Here the hill-country ceases and the plain of the sea-board begins. In many of the States it marks the head of tide-

water and of navigation. It is here that the most important cities of our Atlantic States have been built. The presence of water-power or of tide-water, or the conjunction of both, has determined their location. Other conveniences make them desirable dwelling places. Such is the equal accessibility of the fruit and vegetable products of the plains with the grazing and dairy products of the hills. Such the equal accessibility of sea-shore and elevated places of summer resort. Professor Cope pointed out this interesting geological position of our Eastern cities several years ago.

The position has, however, the disadvantage of being on the line of fracture of the border of the continent. This line is the hinge on which the flatter region of the coast has in past geological ages moved up and down. Many times this region has been submerged, and as many times it has been elevated above the sea-level. More than half of it in the latitude of New Jersey, that is, a width of one hundred miles, is submerged at the present time. Its sea-border from New Jersey to Florida has been slowly creeping westward, since observations began to be made on our coast. The most exact of these observations have been made by Professor Geo. H. Cook, on the coast of New Jersey. Geologists know that the present state of affairs is not a permanent one. There is no reason to doubt but that the line of fracture referred to may not again become the coast-line, or on the other hand that the width of our coast-region may not be extended one hundred miles out to sea. The plains of this region will then be submerged or elevated. In the former case if the process be rapid the loss of life will be great. But it will probably be slow, with occasional slips of one side of the old faults on the other, which will jar the rocks over large areas. Under these circumstances there is no reason to suppose that our region can continue to be exempt from earthquakes. We are to expect periods of repose alternating with periods of disturbance.

— It is of importance to science in this country that the aid furnished by the Government to its scientific bureaus should be continued. In the present humor of Congress there is some risk that the appropriations for the U. S. Geological Survey may be seriously reduced. For such a result the science of the country will hold the present management of the survey responsible, unless the charges of incapacity and plagiarism now freely made against some of its members can be satisfactorily proven to be false. Such charges should be disposed of, or if true should lead to the discharge of the persons implicated from the employ of the Bureau.—C.